WHAT IS CLAIMED IS:

1. An optical information recording medium, comprising a transparent substrate and a multi-layered film provided on the transparent substrate,

wherein the multi-layered film includes at least a recording layer that is changed between two or more different states capable of being detected optically by irradiation with a light beam, and a light absorbing layer in this order from a side close to the transparent substrate, and

the recording layer contains a material represented by a formula: $Ge_x(Bi_ySb_{1-y})_2Te_{x+3}$ (where $x \geq 5$ and $0 < y \leq 1$) as a main component.

2. The optical information recording medium according to claim 1, comprising a first information layer to an N-th information layer (N is an integer of 2 or more) disposed on the transparent substrate in this order from a side close to the transparent substrate, and

at least one of the first information layer to the N-th information layer is the multi-layered film.

3. The optical information recording medium according to claim 1, wherein, assuming that a refractive index of the light absorbing layer is $n_1$, and an extinction coefficient of the light absorbing layer is $k_1$, $3 \leq n_1 \leq 6$ and $1 \leq k_1 \leq 4$.

4. The optical information recording medium according to claim 1, wherein the light absorbing layer contains at least one element selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Os, Ga, In, C, Si, Ge, Sn, Pb, Sb, and Bi.

5. The optical information recording medium according to claim 4, wherein the light absorbing layer contains at least one element selected from the group consisting of Si and Ge.

6. The optical information recording medium according to claim 1, wherein the multi-layered film further includes a lower dielectric layer disposed on a side close to the transparent substrate with respect to the recording layer.

7. The optical information recording medium according to claim 6, wherein a

thickness of the lower dielectric layer is 135 nm or less.

8. The optical information recording medium according to claim 6, wherein, assuming that a thickness of the lower dielectric layer is *d*, a refractive index of the lower dielectric layer is $n_2$, and a wavelength of a light beam used for recording or reproducing is $\lambda$, $n_2d \le 7\lambda/16$.

9. The optical information recording medium according to claim 8, wherein $0 < n_2d \le 3\lambda/16$ or $\lambda/4 \le n_2d \le 7\lambda/16$.

10. The optical information recording medium according to claim 6, wherein the multi-layered film further includes a lower interface layer between the lower dielectric layer and the recording layer.

11. The optical information recording medium according to claim 10, wherein the lower interface layer is made of a material containing at least one kind of oxide selected from the group consisting of oxides of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, and Si as a main component.

12. The optical information recording medium according to claim 1, wherein the multi-layered film further includes an upper dielectric layer disposed on an opposite side of the transparent substrate with respect to the recording layer.

13. The optical information recording medium according to claim 12, wherein a thickness of the upper dielectric layer is in a range of 15 nm to 80 nm.

14. The optical information recording medium according to claim 13, wherein a thickness of the upper dielectric layer is in a range of 25 nm to 60 nm.

15. The optical information recording medium according to claim 12, wherein the multi-layered film further includes an upper interface layer between the recording layer and the upper dielectric layer.

16. The optical information recording medium according to claim 15, wherein the upper interface layer is made of a material containing at least one kind of oxide selected from the group consisting of oxides of Ti, Zr, Hf, V, Nb, Ta, Cr,

Mo, W, and Si as a main component.

17. The optical information recording medium according to claim 1, wherein the multi-layered film further includes a reflective layer disposed on an opposite side of the transparent substrate with respect to the light absorbing layer.

18. A method for producing an optical information recording medium comprising, on a transparent substrate, a multi-layered film including at least a recording layer that is changed between two or more different states capable of being detected optically by irradiation with a light beam, and a light absorbing layer in this order from a side close to the transparent substrate,

wherein the recording layer is formed so as to contain a material represented by a formula: $Ge_x(Bi_ySb_{1-y})_2Te_{x+3}$ (where $x \geq 5$ and $0 < y \leq 1$) as a main component.

19. The method for producing an optical information recording medium according to claim 18, the medium comprising a first information layer to an N-th information layer (N is an integer of 2 or more) disposed on the transparent substrate in this order from a side close to the transparent substrate,

wherein at least one of the first information layer to the N-th information layer is formed as the multi-layered film.

20. The method for producing an optical information recording medium according to claim 18, wherein, in the multi-layered film, a lower dielectric layer to be disposed on a side close to the transparent substrate with respect to the recording layer is formed so as to have a thickness of 135 nm or less.

21. An information recording method for recording information onto an optical information recording medium comprising, on a transparent substrate, a multi-layered film including at least a recording layer that is changed between two or more different states capable of being detected optically by irradiation with a light beam, and a light absorbing layer in this order from a side close to the transparent substrate,

wherein the recording layer contains a material represented by a

formula: $Ge_x(Bi_ySb_{1-y})_2Te_{x+3}$ (where $x \geq 5$ and $0 < y \leq 1$) as a main component, and

while the medium is rotated, the information is recorded with a laser power modulation pulse waveform set in such a manner that as a linear velocity of the medium is increased, a value obtained by dividing a time integration of a light-emission power by a maximum light-emission power is higher.

22. The information recording method according to claim 21, wherein the optical information recording medium includes a first information layer to an N-th information layer (N is an integer of 2 or more) disposed on the transparent substrate in this order from a side close to the transparent substrate, and

at least one of the first information layer to the N-th information layer is formed as the multi-layered film.

23. An information recording apparatus for recording information onto an optical information recording medium comprising, on a transparent substrate, a multi-layered film including at least a recording layer that is changed between two or more different states capable of being detected optically by irradiation with a light beam, and a light absorbing layer in this order from a side close to the transparent substrate,

wherein the recording layer contains a material represented by a formula: $Ge_x(Bi_ySb_{1-y})_2Te_{x+3}$ (where $x \geq 5$ and $0 < y \leq 1$) as a main component, and

while the medium is rotated, the information is recorded with a laser power modulation pulse waveform set in such a manner that as a linear velocity of the medium is increased, a value obtained by dividing a time integration of a light-emission power by a maximum light-emission power is higher.

24. The information recording apparatus according to claim 23, wherein the optical information recording medium includes a first information layer to an N-th information layer (N is an integer of 2 or more) disposed on the transparent substrate in this order from a side close to the transparent substrate, and

at least one of the first information layer to the N-th information

layer is formed as the multi-layered film.